

## **Dr. Shenfu Dong**

Cooperative Institute for Marine and Atmospheric Studies, University of Miami  
Atlantic Oceanographic and Meteorological Laboratories, NOAA  
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### **OBJECTIVE**

Position in physical oceanography to carry out observations, and to collect, analyze, and interpret oceanographic data for cutting edge research; prepare scientific manuscripts and present results in meetings with emphasis on: large-scale and mesoscale ocean-atmosphere interaction; interannual-to-decadal ocean and climate variability; multidisciplinary studies (carbon, nutrients, and marine weather); statistical analysis of global scale data sets to interpret results in comparison with model data. Seeks position to develop and implement studies and research to determine the effect of the ocean on the climate.

### **EDUCATION**

**Ph.D. in Physical Oceanography,** 2004  
University of Washington, School of Oceanography, Seattle, WA

**M.S. in Physical Oceanography,** 1999  
University of Washington, School of Oceanography, Seattle, WA

**M.S. in Physical Oceanography,** 1996  
Ocean University of China, College of Physical and Environmental Oceanography, Qingdao, China

**B.S. in Physical Oceanography,** 1994  
Ocean University of China, College of Physical and Environmental Oceanography, Qingdao, China

### **EMPLOYMENT HISTORY**

**Associate Scientist** 2011-present  
Cooperative Institute for Marine and Atmospheric Studies (CIMAS), University of Miami  
NOAA/AOML/Physical Oceanography Division

**Assistant Scientist** 2007-2011  
Cooperative Institute for Marine and Atmospheric Studies (CIMAS), University of Miami  
NOAA/AOML/Physical Oceanography Division

**Postdoctoral Researcher** 2004-2007  
Scripps Institution of Oceanography, University of California, San Diego, CA

**Research Assistant** 1997-2004  
School of Oceanography, University of Washington, Seattle, WA

**Teaching Assistant** 2000, 2003  
School of Oceanography, University of Washington, Seattle, WA

**Research Assistant** 1994-1997  
Ocean University of China, College of Physical and Environmental Oceanography, Qingdao, China

### **CURRENT FUNDED PROPOSALS**

- Investigating the Processes Contributing to the Salinity Differences between Aquarius and in situ Measurements (NASA Ocean Surface Salinity Team program, 07/01/14-06/30/17, \$552K, lead-PI).

- NSF/OCE: Interannual variability of the Brazil Current (09/01/2015-08/31/2018, \$488.3K, co-PI).
- Assessment of the Meridional Overturning Circulation and Meridional Heat Transport and their meridional variability in the South Atlantic (NASA Ocean Surface Topography Science Team program, 01/01/2013-12/31/2016, \$30K, co-PI).
- Evaluation and Diagnosis of the Atlantic Meridional Overturning Circulation 3D Structure in Climate Models. (NOAA/CPO, 08/01/2015-07/31/2018, \$63.2K, co-PI).
- Ocean Indicators in the Tropical and South Atlantic Ocean (NOAA/CPO, 03/2014-02/2017, \$471K, co-PI)
- Variability and coherence of the Atlantic Meridional Overturning Circulation (NOAA/CPO, 07/07/2014-06/30/2017, \$239.2K, co-PI).
- State of the Climate: Quarterly Reports of the Meridional Heat Transport in the Atlantic Ocean (NOAA/CPO, FY15, \$85.2K, lead-PI).
- AOML XBT Network (NOAA/CPO, FY15, \$1248.4K, co-I).
- Southwest Atlantic Meridional Overturning Circulation (NOAA/CPO, FY15, \$154K, co-I)
- Baringer, M., and S. Dong, Subcontract with National Oceanography Centre in support of the National Environmental Research Council project entitles “Atlantic BiogeoChemical Fluxes (ABC fluxes)” (FY2015-FY2020, \$254K).

## **REFEREED PUBLICATIONS**

### ***In preparation***

- (1) **Dong, S.**, M. Baringer, and G. Goni: *Ltimetry-derived Gulf Stream property changes: Is the sea level rise along the U.S. eastcoast linked to the Gulf Stream slow down?*. In preparation.

### ***In revision***

- (2) Lopez, H., **S. Dong**, S.-K. Lee, and G. Goni, 2015: *Multi-decadal South Atlantic Meridional Overturning Circulation variability and its slow modulations of global atmospheric circulation and monsoons*. *J. Climate*, in revision.

### ***Published***

- (3) Baringer, M. O., W. E. Johns, W. R. Hobbs, S. Garzoli, **S. Dong**, J. Willis, 2015: [Global Oceans] Meridional Oceanic Heat Transport in the Atlantic Ocean, [in “State of the Climate in 2014”]. *Bull. Am. Met. Soc.*, **96**(7).
- (4) Cheng, L., J. Abraham, G. Goni, T. Boyer, S. Wijffels, R. Cowley, V. Gouretski, F. Reseghetti, S. Kizu, **S. Dong**, F. Bringas, M. Goes, L. Houptet, J. Sprintall, and J. Zhu, 2015: Fourth XBT Science Workshop progress report: making consensus and establishing best practices to reduce XBT biases. *Bull. Am. Met. Soc.*, in press.
- (5) **Dong, S.**, G. Goni, and F. Bringas, 2015: Temporal Variability of the South Atlantic Meridional Overturning Circulation Between 20°S and 35°S. *Geophys. Res. Lett.*, in press.
- (6) Garzoli, S. L., **S. Dong**, R. Fine, C. Meinen, R. C. Perez, C. Schmid, E. van Sebille, and Q. Yao, 2015: The fate of the Deep Western Boundary Current in the South Atlantic. *Deep-Sea Res., Part I*. doi: 10.1016/j.dsr.2015.05.008.
- (7) Perez, R., M. O. Baringer, **S. Dong**, S. L. Garzoli, M. Goes, G. J. Goni, R. Lumpkin, C. S. Meinen, R. Msadek, U. Rivero, 2015: Measuring the Atlantic Meridional Overturning Circulation. *Mar. Tech. Sci. J.*, 49(2), 167-177, doi:10.4031/MTSJ.49.2.14.

- (8) **Dong, S.**, G. J. Goni, and R. Lumpkin, 2015: Mixed-Layer Salinity Budget in the SPURS Region on Seasonal to Interannual Time Scales. *Oceanography*, Vol. 28 (1), 78-85, doi:10.5670/oceanog.2015.05.
- (9) Goes, M., G. J. Goni, and **S. Dong**, 2015: An optimal XBT-based monitoring system for the South Atlantic Meridional Overturning Circulation at 34S. *J. Geophys. Res.*, 120, 1,161-181, doi:10.1002/2014JC010202.
- (10) **Dong, S.**, M. O. Baringer, G. J. Goni, C. S. Meinen, and S. L. Garzoli, 2014: Seasonal variations in the South Atlantic Meridional Overturning Circulation from observations and numerical models. *Geophys. Res. Lett.*, 41, 4611-4618.
- (11) Ansorge I., M. Baringer, E. Campos, **S. Dong**, Rana A. Fine, S. Garzoli , G. Goni, C. Meinen, R. Perez, Alberto Piola, Michael Roberts, Sabrina Speich, Janet Sprintall, Thierry Terre, and Marcel Van den Berg, 2014: "Bridging the Atlantic," *EOS, Transactions, American Geophysical Union*, 95(6):53-54, doi:10.1002/2014EO060001.
- (12) Baringer, M. O., W. E. Johns , S. Garzoli, **S. Dong**, D. Volkov, W. R. Hobbs, J. Willis, 2014: [Global Oceans] Meridional Oceanic Heat Transport in the Atlantic Ocean [in "State of the Climate in 2013"]. *Bull. Amer. Meteor. Soc.*, 95(7), S69-71.
- (13) Domingues, R., G. Goni, S. Swart, and **S. Dong**, 2014: Wind forced variability of the Antarctic Circumpolar Current south of Africa between 1993-2010. *J. Geophys. Res.*, 119, 1123-1145.
- (14) Meinen, C. S., S. Speich, R. C. Perez, **S. Dong**, A. R. Piola, S. L. Garzoli, M. Baringer, S. Gladyshev, and E. Campos, 2013: Temporal variability of the meridional overturning circulation at 34.5°S: Preliminary results from two boundary arrays in the South Atlantic. *J. Geophys. Res.*, 118, 6461-6478.
- (15) **Dong, S.**, and K. A. Kelly, 2013: How Well Do Climate Models Reproduce North Atlantic Subtropical Mode Water? *J. Phys. Oceanogr.*, 43, 2230 - 2244.
- (16) Kelly, K.A., and **S. Dong**, 2013: The Contributions of atmosphere and ocean to North Atlantic Subtropical Mode Water volume anomalies. *Deep-Sea Res.*, 91:111-127.
- (17) Baringer, M. O., W. E. Johns, G. McCarthy, J. Willis, S. Garzoli, M. Lankhorst, C. S. Meinen, U. Send, W. R. Hobbs, S. A. Cunningham, D. Rayner, D. A. Smeed, T. O. Kanzow, P. Heimbach, E. Frajka-Williams, A. Macdonald, **S. Dong** and J. Marotzke, 2013: [Global Oceans] Meridional Overturning Circulation and Heat Transport Observations in the Atlantic Ocean [in State of the Climate in 2011], *Bull. Am. Met. Soc.*, 94(8), S65-68.
- (18) Garzoli, S. L., M. O. Baringer, **S. Dong**, R. C. Perez, and Q. Yao, 2012. South Atlantic meridional fluxes. *Deep-Sea Res.*, 71:21-32, doi:10.1016/j.dsr.2012.09.003.
- (19) Wang, C., **S. Dong**, A. T. Evan, G.R. Foltz, and S.-K. Lee, 2012: Multi-decadal covariability of North Atlantic sea surface temperature, African dust, Sahel rainfall and Atlantic hurricanes. *J. Clim.*, 25:5404-5415, doi:10.1175/JCLI-D-11-00413.1
- (20) **Dong, S.**, M. Baringer, G. Goni, and S. Garzoli, 2011: Importance of the assimilation of Argo Float Measurements on the Meridional Overturning Circulation in the South Atlantic.*Geophys. Res. Lett.*, 38, L18603, doi:10.1029/2011GL048982.
- (21) **Dong, S.**, S. Garzoli, and M. Baringer, 2011: The role of inter-ocean exchanges on decadal variations of the northward heat transport in the South Atlantic. *J. Phys. Oceanogr.*, 41:1498-1511.

- (22) **Dong, S.**, S. T. Gille, J. Sprintall, and E.J. Fetzer, 2010: Assessing the potential of Atmospheric Infrared Sounder (AIRS) surface temperature and relative humidity in turbulent heat flux estimates in the Southern Ocean. *J. Geophys. Res.*, 115, C05013, doi:10.1029/2009JC005542.
- (23) Wang, C., and **S. Dong**, 2010: Is the basin-wide warming in the North Atlantic Ocean related to atmospheric carbon dioxide and global warming? *Geophys. Res. Lett.*, 37, L08707, doi:10.1029/2010GL042743.
- (24) Wang, C., **S. Dong**, and E. Munoz, 2010: Seawater density variations in the North Atlantic and the Atlantic meridional overturning circulation. *Climate Dynamics*, 34, 953-968, doi:10.1007/s00382-009-0560-5.
- (25) **Dong, S.**, S. L. Garzoli, M. O. Baringer, C. S. Meinen, and G. J. Goni, 2009: The Atlantic Meridional Overturning Circulation and its Northward Heat Transport in the South Atlantic. *Geophys. Res. Lett.*, 36, L20606, doi:10.1029/2009GL039356.
- (26) **Dong, S.**, S. L. Garzoli, and M. O. Baringer, 2009: An Assessment of the Seasonal Mixed-Layer Salinity Budget in the Southern Ocean. *J. Geophys. Res.*, 114, C12001, doi:10.1029/2008JC005258.
- (27) Wang, C., Z. Song, F. Qiao, and **S. Dong**, 2009: What Signals Are Removed and Retained by Using an Anomaly Field in Climatic Research? *International Journal of Climatology*, Vol. 2009, 7pp, doi:10.1155/2009/329754.
- (28) Xu, Y., J. Li, and **S. Dong**, 2009: Ocean circulation from altimetry: progress and challenges. *Ocean Circulation and El Nino: New research*. Edited by F. Columbus, Nova Science Publishers, Inc.
- (29) **Dong S.**, J. Sprintall, S. T. Gille, and L. Talley, 2008: Southern Ocean mixed depth from Argo float profiles. *J. Geophys. Res.*, 113, C06013, doi:10.1029/2006JC004051.
- (30) **Dong S.**, S. Hautala, and K. A. Kelly, 2007: Interannual variations in upper ocean heat content and heat transport convergence in the Western North Atlantic, *J. Phys. Oceanogr.*, 37, 2682-2697.
- (31) **Dong S.**, S. T. Gille, and J. Sprintall, 2007: An assessment of the Southern Ocean mixed-layer heat budget. *Journal of Climate*, 20, 4425-4442.
- (32) **Dong S.**, J. Sprintall, and S. T. Gille, 2006: Location of the Polar Front from AMSR-E Satellite sea surface temperature measurements, *J. Phys. Oceanogr.*, 36, 2075-2089.
- (33) **Dong, S.**, S. T. Gille, J. Sprintall, and C. L. Gentemann, 2006: Validation of the Advanced Microwave Scanning Radiometer for the Earth Observing System (AMSR-E) sea surface temperature in the Southern Ocean. *J. Geophys. Res.*, 111:C04002, doi:10.1029/2005JC002934.
- (34) Kelly, K. A., and **S. Dong**, 2004: The Relationship of Western Boundary Current Heat Transport and Storage to Mid-Latitude Ocean-Atmosphere Interaction, in *Earth's Climate: The Ocean-Atmosphere Interaction*, edited by C. Wang, S.-P. Xie, and J. A. Carton, pp. 347-363, American Geophysical Union Geophysical Monograph 147.
- (35) **Dong S.**, and K. A. Kelly, 2004: Heat budget in the Gulf Stream region: the importance of heat storage and advection. *Journal of Physical Oceanography*, 34:1214-1231.

- (36) **Dong S.**, and K. A. Kelly, 2003: Annual and interannual variations in geostrophic velocity in the Middle Atlantic Bight. *J. Geophys. Res.*, 108(c6), doi:10.1029/2002JC001357, 3172-3180.
- (37) Frankignoul C., G. D. Coetlogon, T. M. Joyce, and **S. Dong**, 2001: Gulf Stream variability and ocean-atmosphere interaction. *J. Phys. Oceanogr.*, 31:3516-3529.
- (38) Du, Y., H. Lu, **S. Dong**, and T. Ling, 1999: Observation and fuzzy mathematics analysis of the skin-bulk temperature difference in the coastal area of Qingdao. *Oceanologia et Limnologia Sinica*, 30(1):81-87.

### **PRESENTATIONS and SEMINARS (last three years)**

Conference on ‘Salinity and Freshwater Changes in the Ocean’ (October 12-15, 2015):  
“Understanding the near-surface stratification with salinity drifters”

Webinar in the Decadal Variability and Predictability series (October 7, 2015): “The Meridional Overturning Circulation in the South Atlantic from Observations and Numerical Models”

IUGG meeting (June, 25-July 2, 2015): “The Meridional Overturning Circulation in the South Atlantic from Observations and Numerical Models”

University of Cape Town Seminar (April 2015): “Contributions of the XBT network to our understanding of the South Atlantic Meridional Overturning Circulation”

The 8th Session of the JCOMM Ship Observation Team (SOT-8) Meeting (April 2015):

1. “Contributions of the XBT Network to Climate Studies: Meridional Overturning Circulation in the South Atlantic”
2. “Impact of Sampling and Historical Biases on XBT-Based Meridional Overturning Circulation Estimates at 34S”

NOAA/AOML/PHOD Seminar (January 2015): “Seasonal Variations of the MOC in the South Atlantic from Observations and Numerical Models”

SAMOC V Workshop (December 2014): “Seasonal Variations of the MOC in the South Atlantic from Observations and Numerical Models”

XBT Science Team meeting (November 2014):

1. “Contributions of the XBT Network to Climate Studies: Meridional Overturning Circulation in the South Atlantic”
2. “Impact of Sampling and Historical Biases on XBT-Based Meridional Overturning Circulation Estimates at 34S”

US AMOC Science Team meeting (September 2014): “Meridional changes of the South Atlantic Meridional Overturning Circulation from satellite measurements”

NASA SPURS Workshop (April 2014): “Surface salinity budget in the SPURS region”

NOAA/AOML Lab Review (March 2014): “South Atlantic Meridional Overturning Circulation” (poster)

NOAA/AOML/PHOD Seminar (February 2014): “North Atlantic Subtropical Mode Water Variability and its Simulation in Climate Models”

AGU Ocean Science meeting (February 2014): “Seasonal Variations of the MOC in the South Atlantic from Observations and Numerical Models” (poster)

OSTST Science Team meeting (October 2013):

1. “Meridional Changes of MOC in the South Atlantic”
2. “What causes the model-data differences in seasonal variations of the South Atlantic Meridional Overturning Circulation?” (poster)

Seventh Session of the JCOMM Ship Observations Team (SOT) meeting (April 2013): “Meridional Overturning Circulation in the South Atlantic and its Transports of Heat and Freshwater”

US AMOC meeting (August 2012): “Causes for model-data differences in seasonal variations of the South Atlantic Meridional Overturning Circulation”

2012 Annual CLIMODE PI Meeting (July 2012): “How well do climate models reproduce North Atlantic subtropical mode water?”

AMS 18<sup>th</sup> Conference on Air-Sea Interaction (July 2012): “How well do climate models reproduce North Atlantic subtropical mode water?”

AGU Ocean Science meeting (February 2012): “Seasonal Variations of the MOC in the South Atlantic from Observations and Numerical Models”

## **AWARDS and HONORS**

- Undergraduate Scholarship: Ocean University of China, China, 1990-1994.
- Outstanding Student Award: Shandong Province, China, 1993.
- Excellent Graduate Award: Ocean University of China, China, 1994.
- He Chongben Fellowship: Ocean University of China, China, 1994.
- Outstanding Graduate Student Fellowship: Ocean University of China, 1995/1996.
- Invitation to Physical Oceanography Dissertation Symposium II, 2003, Hawaii
- Invitation to DISCCRS (Dissertations Initiative for the Advancement of Climate Change Research) symposium, March 26 – April 2, 2006, Pacific grove, California.
- Invitation to MPOWIR Pattullo Conference, May, 2008, Charleston, South Carolina.

## **PANELS and COMMITTEES**

- Serving as Ph.D committee member for Yu Cheng (RSMAS/U. of Miami)
- Served as a panel member for NASA scientific program in 2014.
- Member of NASA OSST Team (2014-present).
- Member of NASA OSTST Team (2012-present).
- Member of US AMOC Team (2010-present)
- Member of the AMS Air-Sea Interaction Committee (2009 – 2015).
- Member of XBT Science Team
- Member of XBT (SOOPIP) Team

## **SYNERGISTIC ACTIVITIES**

- Co-convener for the IAPSO session at the 2015 IUGG Symposium (2015).
- Co-organizer for air-sea interaction session at the AMS 2015 Annual Meeting (2014).
- Junior member of Mentoring Physical Oceanography Women to Increase Retention (MPOWIR) Mentoring Group (2009 – 2013).
- Co-organizer of a SAMOC group meeting for logistics and planning of a trans-basin MOC monitoring array along 34.5°S in the Atlantic (2013).

- Served as science judge for Student Presentation Award at the AMS 18<sup>th</sup> ASI Conference (2012)
- Organizer of the seminar series for the Physical Oceanography Research Division at SIO for 2004-2005 academic year.
- Member of American Geophysical Union.
- Served as a reviewer for scientific journals and funding agencies (2004-present).

### **COLLABORATORS**

Drs. K. A. Kelly, S. Gille, J. Sprintall, L. Talley, S. Hautala, S. Garzoli, M. Baringer, C. Meinen, G. Goni, E. Fetzer, S.-K. Lee, H. Lopez, R. Perez, A. Piola, E. Campos, S. Speich, S. Gladyshev, R. Fine, R. Lumpkin, C. L. Gentemann, C. Wang, E. Munoz, T. Evan, S. Swart, G. Foltz, D. Volkov, R. Domingues, Y. Xu, M. Goes, R. Msadek, Y. Du, H. Lu, T. Ling, C. Frankignoul, G. Coetlogon, T. Joyce, Z. Song, F. Qiao, W. Johns, W. Hobbs, J. Willis, G. McCarthy, M. Lankhorst, U. Send, W. Hobbs, S. Cunningham, D. Rayner, D Smeed, T Kanzow, P. Heimbach, E. Frajka-Williams, A. Macdonald, J. Marotzke, I. Ansorge, M. Roberts, T. Terre, and M. Van den Berg., C. Schmid, E. van Sebille.